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Assessment of postbrachytherapy sexual function: A comparison of the IIEF-5 and the MSEFS

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ABSTRACT

PURPOSE: This study is to compare the Mount Sinai Erectile Function Score (MSEFS), our brachytherapy program's physician-assigned scale, with patients' independently completed International Index of Erectile Function-5 (IIEF-5).

METHODS AND MATERIALS: A total of 1202 patients with T1–T3 prostate cancer were treated with ultrasound-guided radioactive seed implantation ± EBRT with at least one visit where both MSEFS and IIEF-5 were completed. Spearman rho correlations were performed.

RESULTS: The MSEFS significantly correlated with the total IIEF-5 scores on all comparisons. The coefficient was 0.65 for comparisons at initial consultation and 0.76 for all visits. The correlations remained strong, averaging to 0.76 for visits 1 through 10.

CONCLUSIONS: In assessing erectile dysfunction after radiation, the MSEFS correlates well with, but cannot be replaced by, the IIEF-5, which is weighted toward one's degree of sexual desire. More insight into patients' erectile function after brachytherapy may be gotten if the IIEF-15 is used instead of the IIEF-5 with our MSEFS.

Keywords: Prostate brachytherapy; Erectile dysfunction; Impotence; SHIM; IIEF-5

Introduction

Erectile dysfunction (ED), was defined by the National Institutes of Health (NIH) Consensus Development Panel on Impotence in 1993 as ''the inability of the male to attain and maintain erection of the penis sufficient to permit satisfactory sexual intercourse.'' As the number and quality of prostate cancer treatments have improved, the preservation of erectile function (EF) has become a significant consideration for those seeking treatment (1). The intimate anatomic associations that the prostate gland shares with the pelvic plexus of nerve fibers, as well as blood vessels that are necessary to permit erections is well known (2). Before the development of the modern nerve sparing radical prostatectomy, the rate of ED associated with surgery approached 90%, often leading men toward novel therapies in the late 1980s and early 1990s to preserve EF and maintain urinary continence (2). Using ultrasound image guided brachytherapy post-treatment EF rates of 79% and 59% at 3 and 6 years, respectively, have been observed in patients who had adequate EF before treatment (3). Although the causal mechanism of radiation-induced EF is unclear, Zelefsky and Eid have described that damage to the arteries supplying the muscles of the penis was a more common etiology to ED among patients treated with external beam radiation therapy than among men treated with radical prostatectomy (4). In terms of treatment efficacy, there does not seem to be a clear difference in the modern treatment modalities available; therefore, a shift has occurred toward focusing on minimizing treatment morbidity and optimizing quality-of-life issues, including sexual function and urinary continence (5, 6).

Self-reported sexual function appears to be the best assessment method of a man's potency (7). In the recent past, penile EF was uniformly assessed by the patients' physician after a single question, but as the recognition of examiner bias was made, validated questionnaires filled out by patients have become the agent of choice. Such questionnaires include the Derogatis Sexual Functioning Inventory, the International Index of Erectile Function (IIEF-15), and its abbreviated form the IIEF-5, also known as the Sexual Health Inventory for Men, the subject of this study (8, 9).

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The trend has been to move away from more costly procedures such as penile blood flow studies and prostaglandin E_1 injection, to these questionnaires, due to the ease with which they can be administered in the clinical setting (10).

The IIEF-5 includes a series of five questions aimed at analyzing, specifically, the EF domain of male sexual function, whereas the IIEF-15 also includes questions about orgasmic function, sexual desire, intercourse satisfaction, and overall satisfaction (11). The IIEF-5 has been shown to be valid in diagnosing the presence and severity of ED and was adapted from the IIEF-15 in accordance with the NIH definition of ED (12). As a result, the American Brachytherapy Society recommends its use in assessing EF before initiation of treatment and prospectively after therapy (5).

We have previously published our experience with the physician-assessed EF score—the Mount Sinai Erectile Function Score (MSEFS) (3). Developed in 1990, our scale focuses on a man's ability to have an erection, whereas the IIEF-5 also highlights the act of intercourse and its completion. If a man is able to get optimal erections, but is not sexually active, then he will receive an optimal rating with the MSEFS, but possibly be scored has having severe ED with the IIEF-5. This may occur if a patient answers the questions on the IIEF-5 about intercourse with the lowest possible value. In this study, we compared the total IIEF-5 scores to the MSEFS physician-assigned potency scores for 3161 followup visits to better understand how each test contributes to our understanding of the prevalence of brachytherapy-induced ED.

Materials and methods

Patient characteristics

Between June 1990 and June 2004, 2172 patients were treated with brachytherapy at Mount Sinai. All patients have been followed up prospectively in a database. Of these, 1202 patients were identified for this study. Eligibility required that the patient was administered an IIEF-5 as part of at least one of his evaluations, be it at initial consultation or during a routine followup visit. At Mount Sinai, the IIEF-5 was first given in June 2000. The patients had early stage prostate cancer with a median Gleason sum of 6 (range, 2–10), median prostate-specific antigen (PSA) 6.98 (range, 0.32–300.0), and T stage distribution including T1, T2, and T3 cancers. Four percent of patients had CAD, 9% were active smokers, 6% had a prior history of another primary cancer, and approximately 6% had diabetes mellitus. In 681 cases (56.6%), I-125 was the isotope implanted. The remaining 521 patients (43.4%) received Pd-103 as their implant. Seven hundred eighty-three (65.1%) of the patients received implant alone as their radiation treatment, whereas 419 (34.9%) of the patients received supplemental external beam radiation in addition to their implant. Of these 1202 patients, 656 (54.6%) also received neoadjuvant and adjuvant hormone therapy.

EF assessment

The MSEFS is a numerical EF score created at Mount Sinai; it is assigned to the patient by the doctor after an interview and can range from 0 to 3 (Table 1): 0—no erections, 1—ability to have erections but insufficient for vaginal penetration, 2—EF sufficient for vaginal penetration but suboptimal, and 3—normal EF (13). In this grading system, scores of 2 and 3 are considered to be adequate EF.

In June 2000, we began using an additional EF scoring system, the IIEF-5. It contains five questions, each prefaced by "over the past 6 months," concerning (*1*) one's confidence of getting and keeping an erection; (*2*) how often the erections were hard enough for penetration; (*3*) how often one could maintain an erection after penetration; (*4*) how difficult it is to maintain one's erection until completion of intercourse; and (*5*) how often intercourse was satisfactory (Table 2) (12). Each question was originally rated on a scale of 1 to 5, the range of possible scores being 5 to 25. The severity of ED has been broken down into five different levels according to the total IIEF-5 score: severe ED (5–7), moderate ED (8–11), mild-to-moderate ED (12–16), mild ED (17–21), and no ED (22–25) (12). The IIEF-5 we have used allows a score of zero to be registered for questions 2 to 5 therefore allowing the lowest possible score to be 1.

When the patients were seen by the physician (RGS), beginning with the initial consultation, they were assigned an EF score from 0 to 3 (MSEFS). In addition, patients were asked to fill out an IIEF-5, which provides a more comprehensive assessment of sexual function. This same procedure was performed approximately every 6 months when the patients returned for followup. The median followup time was 36 months (range, none to 165 months).

Statistical methods

Analyses were performed using the Statistical Package for Social Sciences (SPSS) software. Evaluation of intertest correlation was determined using the Spearman's rho test. Differences in proportions were derived using the χ^2 test. A two-tailed p value of <0.05 was considered to indicate statistical significance.

Table 1
Breakdown of the MSEFS, as it was administered by the physician

Score	Degree of EF
0	No erections
1	Ability to have erections but insufficient for vaginal penetration
2	EF sufficient for vaginal penetration but suboptimal
3	Normal EF

MSEFS = Mount Sinai Erectile Function Score; EF = erectile function.